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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/596,954

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Chad J. Carter

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EXAMINER

ADDISON, KAREN B

ART UNIT

PAPER NUMBER

2837

NOTIFICATION DATE

DELIVERY MODE

11/14/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

LegalUSDocketing@mmm.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/596,954	<b>Applicant(s)</b> CARTER ET AL.	
	<b>Examiner</b> KAREN B. ADDISON	<b>Art Unit</b> 2837	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2011.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 5) ☒ Claim(s) 1-18 is/are pending in the application.
- 5a) Of the above claim(s) 19-23 is/are withdrawn from consideration.
- 6) ☒ Claim(s) 8-18 is/are allowed.
- 7) ☒ Claim(s) 1-3 and 5-7 is/are rejected.
- 8) ☒ Claim(s) 4 is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 21 January 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> .                                  | 6) <input type="checkbox"/> Other: ____.                          |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :2/9/11,6/17/2010;3/3/10,7/29/09;10/26/07.

**DETAILED ACTION**

***Election/Restrictions***

1. Claims 19-23 is withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected surface acoustic wave sensor, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 8/8/11.
2. Applicant's election with traverse of claims 1-18 in the reply filed on 8/8/11 is acknowledged. The traversal is on the ground(s) that group I and II are so interrelated that a search of one group of the claims will reveal art the other is noted This is not found persuasive because the product as claimed can be made by another and materially different process such as: electrically coupling the plurality of electrodes of a surface acoustic wave sensor to a plurality of electrical contacts by solder, ultrasonic bonding, or epoxy bonding. Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and/or examination burden if restriction were not required because at least the following reason(s) apply: .

The requirement is still deemed proper and is therefore made FINAL.

***Allowable Subject Matter***

3. Claim 8-18 allowed.
4. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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5. The following is a statement of reasons for the indication of allowable subject matter:

Prior art fails to show, [Regarding claim 4] the surface acoustic wave sensor forms part of a sensor cartridge and the surface acoustic wave sensor is exposed to a fluid path within the cartridge via the aperture. [Regarding claim 8-18]

A sensor cartridge having a housing comprising a fluid path; and a surface acoustic wave sensor assembly comprising a surface acoustic wave sensor that comprises a plurality of electrodes, a circuit layer that comprises an aperture and a plurality of electrical contacts, and a Z- axis conductive layer to couple the electrical contacts to the electrodes, wherein the surface acoustic wave sensor is exposed to the fluid path via the aperture.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3, 5-7 rejected under 35 U.S.C. 103(a) as being unpatentable over Sawin (US. 6,287,894) in view of Funada (US.6, 078,229)

[Regarding claim 1] Sawin disclose a surface acoustic wave sensor assembly in fig. 1-5  
Comprising: a surface acoustic wave sensor [fig.1 item 10 chip, 14 dies, 16 dies col.4 line 30-67 and col.5 line 1-5] comprising a plurality of electrodes[ item metalize 18 fig.1]; a circuit layer[ 22 fig.3 i.e. circuit board; col.5 line 20-24] and a plurality of electrical

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contacts[ item 24, i.e. conductive vias; which contacts the circuit col.4 line40-45 and fig.3; col.5 lines 20-40]; and a Z-axis conductive layer [ item 28 ; i.e. anisotropic conductive material form a grid; fig 3; col. 4 line 42-52] to couple the electrical contacts(24) to the electrodes(18). Sawin does not show an aperture in the circuit layer.

Funada disclose surface acoustic wave device in fig. 4 comprising: a surface acoustic wave device (i.e. piezoelectric substrate 81 including inter- digital transducer 83 see fig.4); electrode bump (85) [i.e. see fig.4], electrode pads (84) [i.e. see fig.4] and circuit substrate 82(i.e. printed circuit board see fig.4) with a hollow 87 (i.e. cavity see fig.4) for the purpose of completing electrical conduction there-between the surface acoustic wave device and the printed circuit board[i.e. col.4 line 48-56]. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Sawin with the surface acoustic device of Funada (fig.4) for the purpose of completing electrical conduction[i.e. col.4 line 48-56].

8. [Regarding claim 1 and 2] As seen above in paragraph 7, Sawin in view of Funada disclose the claim invention. Sawin also disclose the surface acoustic wave sensor assembly of claim 1, wherein the Z-axis conductive layer 28 (fig 3; col. 4 line 42-52 and col.5 line 65) comprises a Z-axis conductive elastomer.

It also would have been obvious to one having ordinary skill in the at the time the invention was made to select a conductive material with elastomer since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

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9. [Regarding claim 1, 2-3] As seen above in paragraph 7, Sawin in view of Funada disclose the claim invention. Sawin also disclose the surface acoustic wave sensor assembly of claim 2, wherein the Z-axis conductive (28) elastomer forms a hermetic barrier[ see col.2 line 52-55] between the surface acoustic wave sensor and the circuit layer(22).

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to select a conductive material with elastomer since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

10. [Regarding claims 1 and 5] As seen above in paragraph 7, Sawin in view of Funada disclose the claim invention Including the surface acoustic wave sensor assembly of claim 1, Sawin does not disclose whether the surface acoustic wave sensor comprise a love mode horizontal surface acoustic wave sensor.

It also would have been obvious to one having ordinary skill in the art the time the invention was made to select a love mode surface acoustic wave sensor since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

11. [Regarding claim 1 and 6] As seen above in paragraph 7, Sawin in view of Funada disclose the claim invention. Sawin also disclose the surface acoustic wave sensor assembly of claim 1, wherein the electrical contacts [item 24, i.e. conductive vias; which

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contacts the circuit col.4 line40-45 and fig.3; col.5 lines 20-40] of the circuit layer [22 fig.3 i.e. circuit board; col.5 line 20-24] comprise circuit traces [col.4 line 56-58] formed on the circuit layer [22].

12. [Regarding claims 1 and 7] As seen above in paragraph 7, Sawin in view of Funada disclose the claim invention. Sawin also disclose the surface acoustic wave sensor assembly of claim 1, wherein the electrodes[ item metalize 18 fig.1] are located at a periphery of the sensor [fig.1 item 10 chip, 14 dies, 16 dies col.4 line 30-67 and col.5 line 1-5].

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAREN B. ADDISON whose telephone number is (571)272-2017. The examiner can normally be reached on M-F , 9am -5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walt Benson can be reached on 571-272-2227. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KBA/  
11/1/11

**/Thomas M. Dougherty/  
Primary Examiner, Art Unit 2837**